

# Exhibit B

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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T-MOBILE USA, INC., AT&T SERVICES INC.,  
AT&T MOBILITY LLC, AT&T CORPORATION,  
CELLCO PARTNERSHIP D/B/A VERIZON WIRELESS,  
NOKIA OF AMERICA CORPORATION, AND ERICSSON INC.,  
Petitioner,

v.

COBBLESTONE WIRELESS LLC,  
Patent Owner.

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Patent 9,094,888 B2

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Before BARBARA A. PARVIS, NATHAN A. ENGELS, and  
RUSSELL E. CASS, *Administrative Patent Judges*.

PARVIS, *Administrative Patent Judge*.

DECISION  
Granting Institution of *Inter Partes* Review  
35 U.S.C. § 314

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## I. INTRODUCTION

T-Mobile USA, Inc., AT&T Services, Inc., AT&T Mobility LLC, AT&T Corporation, Cellco Partnership d/b/a Verizon Wireless, Nokia of America Corporation, and Ericsson Inc. (collectively, “Petitioner”) filed a Petition (Paper 1 (“Pet.”)) requesting *inter partes* review of claims 9, 10, 12, 20, 21, and 23 (“challenged claims”) of U.S. Patent No. 9,094,888 B2 (Ex. 1001, “the ’888 patent”). Cobblestone Wireless LLC (“Patent Owner”) filed a Preliminary Response. Paper 11 (“Prelim. Resp.”). With authorization, Petitioner filed a Preliminary Reply (Paper 13 (“Prelim. Reply”)), and Patent Owner filed a Preliminary Sur-reply (Paper 14 (“Prelim. Sur-reply”)).

We have authority to determine whether to institute review under 35 U.S.C. § 314 and 37 C.F.R. § 42.4. We may institute an *inter partes* review if “the information presented in the petition . . . and any response . . . shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. § 314(a).

Upon consideration of the contentions and the evidence of record at this preliminary stage, we determine that Petitioner has demonstrated a reasonable likelihood of prevailing on at least one of the challenged claims of the ’888 patent. Accordingly, we grant Petitioner’s request and institute an *inter partes* review of all challenged claims of the ’888 patent and with respect to all grounds set forth in the Petition.

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## II. BACKGROUND

### A. *Real Parties in Interest*

Petitioner identifies T-Mobile USA, Inc., AT&T Services, Inc., AT&T Mobility LLC, AT&T Corporation, Cellco Partnership d/b/a Verizon Wireless, Nokia of America Corporation, and Ericsson Inc. Pet. 2–3.

Petitioner also identifies Samsung Electronics Co., Ltd., because it is named as a defendant and its products are accused of infringement in a related district court litigation. *Id.* at 3. Patent Owner names itself as the real party in interest. Paper 9, 2.

### B. *Related Matters*

Both parties identify, as matters involving or related to the '888 patent, the following district court proceedings: *Cobblestone Wireless, LLC v. T-Mobile USA, Inc.*, No. 2:22-cv-00477 (E.D. Tex.) (identified as the “LEAD CASE” (Ex. 1012) and referred to herein as the “parallel district court case”); *Cobblestone Wireless, LLC v. Cellco Partnership d/b/a Verizon Wireless*, No. 2:22-cv-00478 (E.D. Tex.); *Cobblestone Wireless, LLC v. AT&T Inc.*, No. 2:22-cv-00474 (E.D. Tex.); and *Cobblestone Wireless, LLC v. Samsung Electronics Co.*, No. 2:23-cv-00285 (E.D. Tex.). Pet. 3–4; Paper 9, 2. Also, Samsung Electronics America, Inc. filed a petition on December 18, 2023, challenging the '888 patent in IPR2024-00315.

### C. *The '888 Patent*

The '888 patent is titled “Wireless Device Handoff Between Wireless Networks.” Ex. 1001, code (54). The '888 patent describes “example methods to be implemented at a first wireless network to handoff a wireless device to a second wireless network.” *Id.* at 1:38–40. One embodiment of a

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wireless communication system including two wireless networks is illustrated in Figure 1A. *Id.* at 2:59–60.

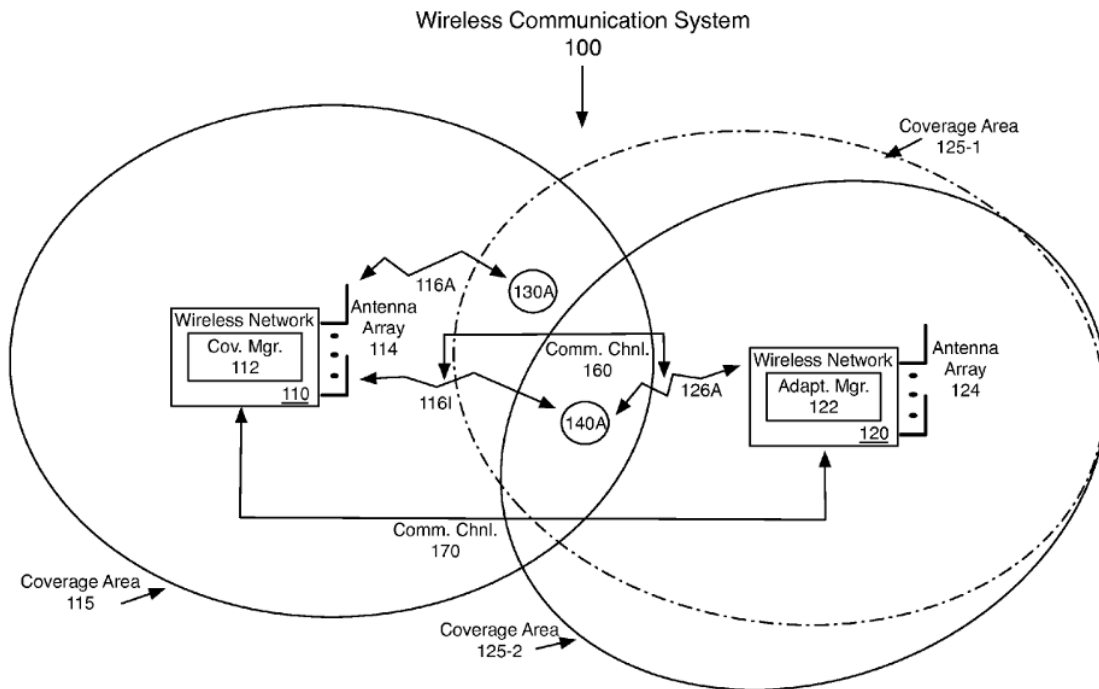


FIG. 1A

Figure 1A, above, illustrates wireless communication system 100 that includes wireless networks 110 and 120. *Id.* at 4:1–2. As shown in Figure 1A, wireless network 110 includes coverage manager 112 and antenna array 114. *Id.* at 4:2–4. Wireless network 120 includes adaption manager 122 and antenna array 124. *Id.* at 4:4–6.

Wireless network 110 has a coverage area indicated in Figure 1A as coverage area 115. *Id.* at 4:6–8. Antenna array 124 of wireless network 120 is adaptable via beamforming to enable wireless network 120 to have variable coverage areas shown in Figure 1A as coverage area 125-1 and coverage area 125-2. *Id.* at 4:8–12. As a result of the variable coverage areas, wireless device 130A is within past coverage area 125-1, but outside of current coverage area 125-2. *Id.* at 5:35–38. Thus, although wireless

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device 130A is not currently covered by wireless network 120, past coverage area 125-1 indicates that network 120 may be capable of providing coverage. *Id.* at 5:38–41.

Coverage manager 112 is configured to determine whether wireless device 130A is capable of being covered by wireless network 120. *Id.* at 6:1–4. It may be determined that wireless device 130A and/or wireless network 110 would benefit from the handoff of wireless device 130A to wireless network 120. *Id.* at 6:6–9. For example, wireless device 130A may obtain a stronger signal from wireless network 120, or wireless device 130A may be moving towards wireless network 120 and away from wireless network 110. *Id.* at 6:9–16. Coverage manager 112 transmits a handoff request to wireless network 120. *Id.* at 6:21–24. Adaption manager 122 of wireless network 120 receives the handoff request and determines whether to adapt antenna array 124 to facilitate coverage of wireless device 130A. *Id.* at 6:26–30. If a determination is made to adapt antenna array 124, adaption manager 122 transmits a confirmation to indicate acceptance of the handoff request. *Id.* at 6:30–33. The coverage area for wireless network 120 is now similar to coverage area 125-1 and wireless device 130A is then handed off from wireless network 110 to wireless network 120. *Id.* at 6:33–37.

#### *D. Illustrative Claim*

Petitioner challenges claims 9, 10, 12, 20, 21, and 23 of the '888 patent. Pet. 6. Claims 9 and 20 are the only independent challenged claims. Claims 10 and 12 depend directly from claim 9 and claims 21 and 23 depend directly from claim 20. Independent claims 9 and 20, reproduced below, are illustrative of the claimed subject matter.

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9. [9.p<sup>1</sup>] A method implemented at a first wireless network for a mobile wireless device handoff between a second wireless network and the first wireless network, the method comprising:

[9.a] receiving a handoff request from the second wireless network, the handoff request based, at least in part, on a determination by the second wireless network that the wireless device is not currently covered by the first wireless network but is capable of being covered by the first wireless network;

[9.b] based, at least in part, on the handoff request, adapting one or more beams of an antenna array to facilitate coverage of the wireless device by the first wireless network; and

[9.c] transmitting a confirmation from the first wireless network to the second wireless network to indicate acceptance of the handoff request, wherein the wireless device is handed off from the second wireless network to the first wireless network.

Ex. 1001, 18:30–49.

20. [20.p] A system for a wireless device handoff between a first wireless network and a second wireless network, the system comprising:

[20.a] an antenna array configured to generate one or more adaptable beams to modify a coverage area for the first wireless network; and

[20.b] an adaption manager having logic, the logic configured to:

[20.c] receive a handoff request from the second wireless network, the handoff request based, at least in part, on a determination by the second wireless network that the wireless device is capable of being covered by the first wireless network,

[20.d] cause a beam from among the one or more adaptable beams to be adapted in order to enable the wireless device to be covered by the first wireless network, and

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<sup>1</sup> Herein we use Petitioner's designations for the limitations of claims 9 and 20. Pet. 25–51, 56–59.

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[20.e] transmit a confirmation to the second wireless network to indicate acceptance of the handoff request, wherein the wireless device is handed off from the second wireless network to the first wireless network.

Ex. 1001, 19:59–20:10.

*E. Evidence*

Petitioner relies on the prior art references in the table below.

| Name      | Reference  | Exhibit |
|-----------|--|---------|
| Chitrapu  | US 2006/0111149 A1, filed Dec. 22, 2005, published May 25, 2006                        | 1003    |
| TS 36.300 | 3rd Generation Partnership Project (3GPP); Technical Specification (TS) 36.300 V10.3.0 | 1223    |

Petitioner also relies on the Declaration of Mr. James A. Proctor (Ex. 1005) to support its contentions that the challenged claims are unpatentable. Patent Owner does not rely on declarant testimony at this early stage in the proceeding.

*F. Asserted Ground*

Petitioner asserts that the challenged claims of the '888 patent are unpatentable based on the ground in the table below (Pet. 6):

| Claims Challenged     | 35 U.S.C. § <sup>2</sup> | Reference/Basis     |
|-----------------------|--------------------------|---------------------|
| 9, 10, 12, 20, 21, 23 | 103(a)                   | Chitrapu, TS 36.300 |

III. DISCRETIONARY DENIAL OF THE PETITION

Patent Owner argues we should exercise our discretion under 35 U.S.C. § 314(a) to deny institution of *inter partes* review in view of the

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<sup>2</sup> The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284 (2011), amended 35 U.S.C. § 103, effective March 16, 2013. Because the challenged claims of the '888 patent have an apparent effective filing date before March 16, 2013, the pre-AIA version of § 103 applies.

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parallel district court case. Prelim. Resp. 23–38; Prelim. Sur-reply. Petitioner disagrees. Pet. 61–63; Prelim. Reply. We address the parties’ arguments regarding discretionary denial below.

Under Section 314(a), the Director has discretion to deny institution. *See* 35 U.S.C. § 314(a) (stating “[t]he Director *may not* authorize an inter partes review to be instituted unless the Director determines that the information presented in the petition . . . shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition”) (emphasis added); *SAS Inst. Inc. v. Iancu*, 138 S. Ct. 1348, 1356 (2018) (“[Section] 314(a) invests the Director with discretion on the question whether to institute review.” (emphasis omitted)); *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2140 (2016) (“[T]he agency’s decision to deny a petition is a matter committed to the Patent Office’s discretion.”); *Harmonic Inc. v. Avid Tech, Inc.*, 815 F.3d 1356, 1367 (Fed. Cir. 2016) (“[T]he PTO is permitted, but never compelled, to institute an IPR proceeding.”).

In determining whether to exercise this discretion based on a related litigation, the Board assesses all relevant circumstances, including the merits, to balance considerations such as system efficiency, fairness, and patent quality. *See Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 (PTAB Mar. 20, 2020) (precedential) (“*Fintiv*”); *NHK Spring Co. v. Intriplex Techs., Inc.*, IPR2018-00752, Paper 8, 19–20 (PTAB Sept. 12, 2018) (precedential). We consider six factors as part of this balanced assessment when determining whether to use our discretion to deny institution:

1. whether the court granted a stay or evidence exists that one may be granted if a proceeding is instituted;

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2. proximity of the court’s trial date to the Board’s projected statutory deadline for a final written decision;
3. investment in the parallel proceeding by the court and the parties;
4. overlap between issues raised in the petition and in the parallel proceeding;
5. whether the petitioner and the defendant in the parallel proceeding are the same party; and
6. other circumstances that impact the Board’s exercise of discretion, including the merits.

*Fintiv*, Paper 11, 5–6. In evaluating these factors, we “take[] a holistic view of whether efficiency and integrity of the system are best served by denying or instituting review.” *Id.* at 6.

On June 21, 2022, the Director issued an Interim Procedure for Discretionary Denials in AIA Post-Grant Proceedings with Parallel District Court Litigation (“Interim *Fintiv* Guidance”).<sup>3</sup> The Interim *Fintiv* Guidance provides “several clarifications” to “the PTAB’s current application of *Fintiv* to discretionary institution where there is parallel litigation” in response to comments received from stakeholders in response to a Request for Comments. Interim *Fintiv* Guidance 2.

In the analysis that follows, we first consider whether *Fintiv* factors 1–5 weigh in favor of exercising our discretion to deny institution. For the reasons discussed below, we conclude that *Fintiv* factors 1–5 weigh in favor of denying institution. Because *Fintiv* factors 1–5 favor denial of institution, we must also determine whether the Petition presents compelling merits. *See*

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<sup>3</sup> The Interim *Fintiv* Guidance is available at [https://www.uspto.gov/sites/default/files/documents/interim\\_proc\\_discretionary\\_denials\\_aia\\_parallel\\_district\\_court\\_litigation\\_memo\\_20220621\\_.pdf](https://www.uspto.gov/sites/default/files/documents/interim_proc_discretionary_denials_aia_parallel_district_court_litigation_memo_20220621_.pdf).

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*CommScope Techs. LLC v. Dali Wireless, Inc.*, IPR2022-01242, Paper 23, 5 (PTAB Feb. 27, 2023) (precedential) (“In circumstances where . . . the Board’s analysis of *Fintiv* factors 1–5 favors denial of institution, the Board shall then assess compelling merits.”). “Compelling, meritorious challenges are those in which the evidence, if unrebutted in trial, would plainly lead to a conclusion that one or more claims are unpatentable by a preponderance of the evidence.” Interim *Fintiv* Guidance 4. “A challenge can only ‘plainly lead to a conclusion that one or more claims are unpatentable’ (*id.*) if it is highly likely that the petitioner would prevail with respect to at least one challenged claim.” *OpenSky Indus., LLC v. VLSI Tech. LLC*, IPR2021-01064, Paper 102, 49–50 (PTAB Oct. 4, 2022) (precedential) (“*OpenSky*”). “[A] determination of ‘compelling’ merits should not be taken as a signal to the ultimate conclusion after trial.” *Id.*

*A. Fintiv Factor 1: Stay in the Parallel Proceeding*

Under the first *Fintiv* factor, we consider “whether the court granted a stay or evidence exists that one may be granted if a proceeding is instituted.” *Fintiv*, Paper 11, 6. Patent Owner contends that this factor weighs in favor of denial because “no stay of the parallel district court litigation has been granted, and a stay is unlikely given the advanced stage of the case.” Prelim. Resp. 24. Petitioner argues that neither party has requested a stay in the parallel district court case, and this factor should be considered neutral. Pet. 61.

We will not attempt to predict how the district court in the parallel district court case would proceed if a stay is requested because the court may determine whether or not to stay any individual case based on a variety of circumstances and facts beyond our control and to which the Board is not

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privy. *Sand Revolution II, LLC v. Cont'l Intermodal Grp. - Trucking LLC*, IPR2019-01393, Paper 24, 7 (PTAB June 16, 2020) (informative) (“*Sand Revolution*”). Accordingly, we find that factor 1 is neutral.

*B. Fintiv Factor 2: Trial Date in the Parallel Proceeding*

Under the second *Fintiv* factor, we consider the “proximity of the court’s trial date to the Board’s projected statutory deadline for a final written decision.” *Fintiv*, Paper 11, 6. Petitioner states that trial in the parallel district court case “is not set to begin until at least September 23, 2024.” Pet. 61 (citing Ex. 1012, 1). Petitioner argues it moved to consolidate the parallel district court case with a later district court case and that trial in the later district court case is set to occur in May 2025. Prelim. Reply 4. Petitioner argues that factor 2 weighs “against discretionary denial based on the potential for an extended district court schedule and trial date.” *Id.*

Patent Owner states that “the district court trial is set to occur **over eight months** before the deadline for a final written decision,” which Patent Owner argues “**weighs heavily in favor of discretionary denial.**” Prelim. Resp. 27. Patent Owner also argues that the “timeframe set by the district court is consistent with the Federal Court Management Statistics for the Eastern District of Texas.” *Id.*

Patent Owner argues that Petitioner’s consolidation motion “is unlikely to be granted” because “there are no overlapping patents, patent families, inventors, or claim construction issues,” “the accused functionalities differ,” and “consolidation would result in an **eight-month trial delay.**” Prelim. Sur-reply 1. Patent Owner argues “Judge Gilstrap *sua sponte* consolidated the Carrier 1.0 Cases with one another (Ex. 1230) and the Carrier 2.0 Cases with one another (Ex. 1231),” but instead of

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“consolidat[ing] the Carrier 1.0 and 2.0 Cases,” Judge Gilstrap “issued separate scheduling orders with differing trial dates.” *Id.* at 2.<sup>4</sup>

We will not attempt to predict how the district court in the parallel district court case will decide the pending consolidation motion. *Cf. Sand Revolution*, Paper 24, 7. Because the deadline for our final written decision is approximately eight months after the current trial date in the parallel district court case, we find that factor 2 weighs in favor of exercising discretion to deny institution.

*C. Fintiv Factor 3: Investment by the Court and the Parties in the Parallel Proceeding*

Under the third *Fintiv* factor, we consider the “investment in the parallel proceeding by the court and the parties.” *Fintiv*, Paper 11, 6. Petitioner argues factor 3 “weighs heavily against discretionary denial” because the parallel district court case “is still in the preliminary stages,” “Claim Construction is not scheduled until April 30, 2024,” and “a claim construction order will not issue prior to the PTAB’s projected institution date.” Pet. 61–62. Regarding invalidity, Petitioner acknowledges that “invalidity contentions [have been filed].” *Id.* at 62. Regarding diligence, Petitioner argues that it “diligently prepared this Petition and filed well in advance of the statutory deadline, which weighs against denying institution.” *Id.*

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<sup>4</sup> The Carrier 1.0 cases are identified as the parallel district court case and *Cobblestone Wireless, LLC v. Cellco Partnership d/b/a Verizon Wireless*, No. 2:22-cv-00478 (E.D. Tex.). Ex. 1230. Carrier 2.0 cases are identified as *Cobblestone Wireless, LLC v. Cellco Partnership d/b/a Verizon Wireless*, No. 2:23-cv-00382 (E.D. Tex.), *Cobblestone Wireless, LLC v. AT&T Services Inc.*, No. 2:23-cv-00380 (E.D. Tex.); and *Cobblestone Wireless, LLC v. T-Mobile USA, Inc.*, No. 2:23-cv-00381 (E.D. Tex.). Ex. 1231.

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Patent Owner argues “the parties and the district court will have invested significant time and resources” in the parallel district court case and that the case will be “far along” at the time of institution. Prelim. Resp. 32. Patent Owner argues, “an order resulting from the May 2, 2024 *Markman* hearing (Ex. 2001) will likely issue” prior to May 29, 2024, and fact discovery and the exchange of opening expert reports also will be completed prior to May 29, 2024. *Id.* at 30–31. Regarding invalidity, Patent Owner argues that, in view of the schedule of the parallel district court case, “[r]ealistically, Patent Owner and its expert will have to begin work on the rebuttal report before receiving the institution decision.” *Id.* at 31. Regarding diligence, Patent Owner argues Petitioner “unduly delayed in filing their Petition, filing just a month before the statutory deadline.” *Id.* at 32.

Because the *Markman* hearing will be completed prior to the time of the institution decision and the parties have invested resources on invalidity, including that Patent Owner will have begun work on its rebuttal report on invalidity, we find that factor 3 weighs in favor of exercising discretion to deny institution.

*D. Fintiv Factor 4: Overlap Between Issues Raised in the Petition and Parallel Proceeding*

Under the fourth *Fintiv* factor, we consider the “overlap between issues raised in the petition and in the parallel proceeding.” *Fintiv*, Paper 11, 6. The Petition states that “if instituted, Petitioners stipulate that they will not pursue invalidity against the asserted claims in the district court using the specific combination of prior art references set forth in the grounds presented in this Petition for purposes of establishing obviousness.” Pet. 62. Patent Owner argues that the fourth *Fintiv* factor favors institution despite Petitioner’s stipulation. Prelim. Sur-reply 5. In particular, Patent Owner

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asserts that Petitioner’s “limited” stipulation “does not alleviate inefficiency concerns.” Prelim. Resp. 35.

Petitioner’s stipulation that it will not rely on the grounds asserted in the Petition in the parallel district court case mitigates to at least some degree concerns of duplicative efforts and potentially conflicting decisions. *See Sand Revolution*, Paper 24, 12. Thus, we find that factor 4 weighs marginally against exercising discretion to deny institution.

*E. Fintiv Factor 5: Whether Petitioner is the Defendant in the Parallel Proceeding*

Under the fifth *Fintiv* factor, we consider “whether the petitioner and the defendant in the parallel proceeding are the same party.” *Fintiv*, Paper 11, 6. Petitioner acknowledges “overlapping parties” and argues factor 5 is neutral. Pet. 62. Patent Owner argues “Petitioners are the defendants and intervenors in the parallel litigation” and, therefore, factor 5 weighs in favor of exercising discretion to deny institution. Prelim. Resp. 37.

In light of the Board’s deadline for a Final Written Decision and the current trial date in the parallel district court case, we find that factor 5 weighs in favor of exercising discretion to deny institution.

*F. Fintiv Factor 6: Other Considerations*

Under the sixth *Fintiv* factor, we consider “other circumstances that impact the Board’s exercise of discretion, including the merits.” *Fintiv*, Paper 11, 6. As discussed above, factor 1 is neutral, factors 2, 3, and 5 weigh in favor of discretionary denial of institution, and factor 4 weighs marginally against discretionary denial. We take “a holistic view of whether efficiency and integrity of the system are best served by denying or instituting review.”

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*Id.* On balance, we conclude that the evidence of record on factors 1–5 favors exercising our discretion to deny institution of an *inter partes* review.

Following *CommScope*, where, as here, our analysis of the first five *Fintiv* factors favors denial of institution, we address the merits of the Petition to determine whether, on this preliminary record, the merits are compelling. *CommScope*, Paper 23, 4–5; Interim *Fintiv* Guidance 3–5. “Compelling, meritorious challenges are those in which the evidence, if unrebutted in trial, would plainly lead to a conclusion that one or more claims are unpatentable by a preponderance of the evidence.” Interim *Fintiv* Guidance 4. “A challenge can only ‘plainly lead to a conclusion that one or more claims are unpatentable’ (*id.*) if it is highly likely that the petitioner would prevail with respect to at least one challenged claim.” *OpenSky*, Paper 102, 49–50. As the Director explains in *OpenSky*, however, this finding “should not be taken as a signal to the ultimate conclusion after trial” because “all relevant evidence likely will not have been adduced at the point of institution [and] trial should produce additional evidence that may support a determination in the Final Written Decision that unpatentability has not been adequately proven.” *Id.*

We determine, on this preliminary record, that the merits here are compelling. As discussed in our analysis below, Petitioner presents a detailed limitation-by-limitation comparison of independent claim 9 to the cited prior art, with extensive citations to the prior art and supporting testimony in the Declaration of Mr. Proctor. Pet. 25–51; Ex. 1005 ¶¶ 65, 100–101, 114–183. Petitioner also provides a compelling, evidence-supported rationale for combining the teachings of Chitrapu and TS 36.300. *See infra* § IV.D.3.a. For instance, Petitioner argues that the primary

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reference “explicitly suggests a POSITA<sup>[5]</sup> look to 3GPP standards” (Pet. 25–26 (citing Ex. 1003 ¶ 7; Ex. 1005 ¶ 117)) and the secondary reference is a 3GPP Technical Specification (Ex. 1223, 1). Petitioner’s argument is supported by Chitrapu and TS 36.300, respectively. *See* Ex. 1003 ¶ 7 (describing systems “constructed in accordance with current specifications of the 3<sup>rd</sup> Generation Partnership Program”); Ex. 1223 (describing that “[t]his technical Specification has been produced by the 3<sup>rd</sup> Generation Partnership Project”). At this stage, Patent Owner disputes Petitioner’s argument for only one limitation of claim 9 (Prelim. Resp. 8–20) and we find Patent Owner’s dispute does not undermine Petitioner’s showing on the current record. *See infra* § IV.D.3.c. For these reasons and the reasons discussed further below (*see* § IV.D.3), based on the record before us, we determine the Petition presents a compelling, meritorious challenge for independent claim 9. We, therefore, determine the facts of this case do not warrant discretionary denial.

#### IV. ANALYSIS

##### A. *Legal Standards*

A patent claim is unpatentable under 35 U.S.C. § 103(a) if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person of ordinary skill in the art to which said subject matter pertains. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art;

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<sup>5</sup> POSITA means person of ordinary skill in the art.

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(3) the level of ordinary skill in the art; and (4) when in evidence, objective evidence of nonobviousness, i.e., secondary considerations.<sup>6</sup> *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

*B. Level of Ordinary Skill in the Art*

Petitioner asserts that a person of ordinary skill in the art

would have had at least a bachelor’s degree in electrical engineering, computer engineering, computer science, physics, or the equivalent, and at least two years of experience working in the field. Ex. 1005, ¶41. Relevant working experience would include experience with telecommunications and networking, radio-access network architectures, protocols and signal propagation, and including handovers in wireless networks. Ex. 1005, ¶41. More education can supplement practical experience and vice versa. Ex. 1005, ¶41.

Pet. 7 (citing Ex. 1005 ¶ 41).

Petitioner’s proposal is undisputed at this early juncture. Prelim. Resp. 6. For purposes of this Decision, and based on the current record, we adopt Petitioner’s assessment of the level of skill for one of ordinary skill in the art, except we decline to adopt “at least” as that language is vague and open-ended. Otherwise, we find, based on the preliminary record before us, that Petitioner’s proposed definition is consistent with the level of skill reflected in the specification of the ’888 patent and the asserted prior art references.

*C. Claim Construction*

We interpret the challenged claims

using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. 282(b),

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<sup>6</sup> Neither party presents objective evidence of nonobviousness at this stage of the proceeding.

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including construing the claim in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent.

37 C.F.R. § 42.100(b). Under this standard, the words of a claim generally are given their “ordinary and customary meaning,” which is the meaning the term would have had to a person of ordinary skill at the time of the invention, in the context of the entire patent including the specification.

*Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–13 (Fed. Cir. 2005) (en banc).

“In determining the meaning of the disputed claim limitation, we look principally to the intrinsic evidence of record, examining the claim language itself, the written description, and the prosecution history, if in evidence.”

*DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469 F.3d 1005, 1014 (Fed. Cir. 2006) (citing *Phillips*, 415 F.3d at 1312–17).

Petitioner states, “[u]nless otherwise indicated in the discussion of the limitations below,” Petitioner believes the terms of the ’888 patent “should be given their plain and ordinary meaning under the *Phillips* standard.”

Pet. 13. Patent Owner states that in its view, “there does not appear to be any express claim constructions set out anywhere in the Petition.” Prelim.

Resp. 7. Patent Owner also states “[f]or purposes of this preliminary response only, Patent Owner agrees that no formal claim construction is necessary and the plain and ordinary meaning under the *Phillips* standard should apply to all claim terms and phrases.” *Id.*

We agree with Patent Owner. For purposes of this decision, we use the plain and ordinary meaning of the terms of the claims. Based on the record before us at this early juncture, we need not make express determinations regarding claim construction to resolve a dispute between the parties. *See Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir.

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2019) (“The Board is required to construe ‘only those terms . . . that are in controversy, and only to the extent necessary to resolve the controversy.’” (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))).

*D. Asserted Obviousness over Chitrapu and TS 36.300*

Petitioner argues that claims 9, 10, 12, 20, 21, and 23 are unpatentable as obvious over Chitrapu and TS 36.300. Pet. 6, 25–60. At this early juncture, Patent Owner disputes only Petitioner’s arguments relating to limitation 9.a. Prelim. Resp. 8–20. We begin with an overview of Chitrapu and TS 36.300 and then turn to the parties’ arguments.

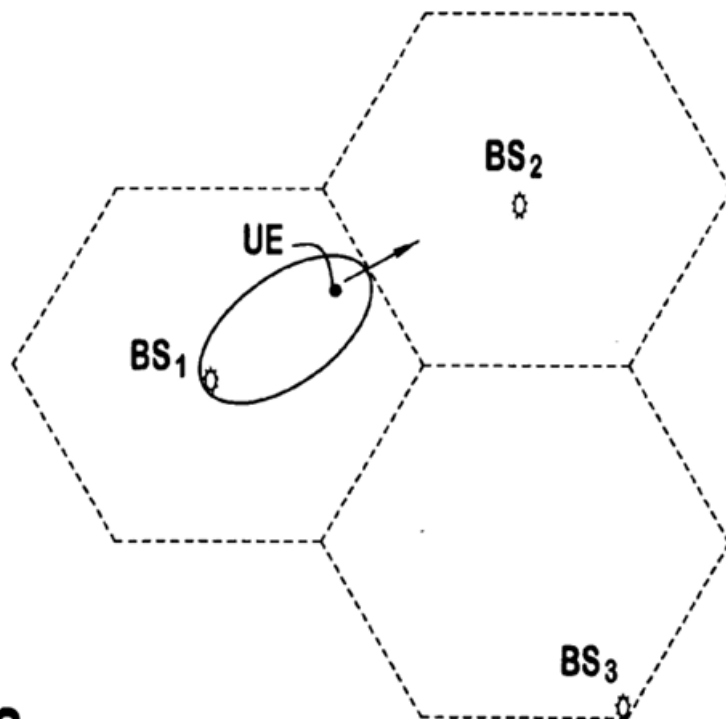
*1. Chitrapu*

Chitrapu is titled “System and Method Utilizing Dynamic Beam Forming for Wireless Communication Signals.” Ex. 1003, code (54). Chitrapu “relates to a method and system using dynamic beam forming for wireless communication signal transmissions and/or receptions in a wireless network.” *Id.* ¶ 2.

Chitrapu describes that “[a]s the UE [user equipment] moves, the characteristics of the RF [radio frequency] link change and the received signal quality at UE and/or the cell tower may be reduced, causing a handover consideration process to be triggered.” *Id.* ¶ 105. Figure 8 illustrates a UE moving from one cell to another. *Id.* ¶ 67.

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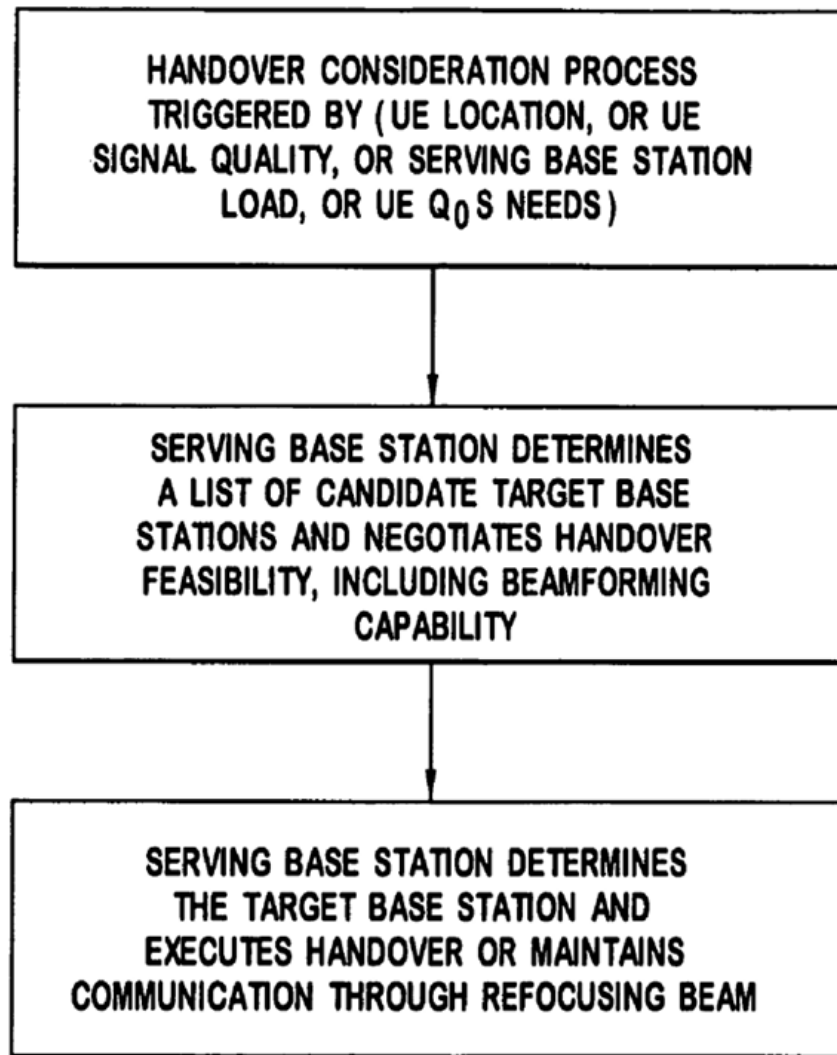
**FIG. 8**

Figure 8, above, illustrates a handover scenario in which a UE is conducting a communication with a base station **BS<sub>1</sub>** in one cell and is moving toward an adjacent cell, which is serviced by a different base station **BS<sub>2</sub>**. *Id.* ¶¶ 67, 105.

One embodiment for a process for conducting a “smart” handover is illustrated in Figure 11. *Id.* ¶ 108.

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**FIG. 11**

Figure 11, above, illustrates a flow chart of a process for conducting a “smart” handover with beam forming base stations, which may result in no handover being made. *Id.* ¶¶ 70, 108.

As shown in Figure 11, the first step is to trigger the smart handover process through the occurrence of a triggering event. *Id.* ¶ 108. The triggering event preferably includes thresholds relating to UE location data, change of location data that indicates travel direction, UE signal quality

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deterioration, serving base station load, and changes in service needs of the UE, which may switch from a low to a high data rate during a communication as required by an underlying communication application. *Id.*

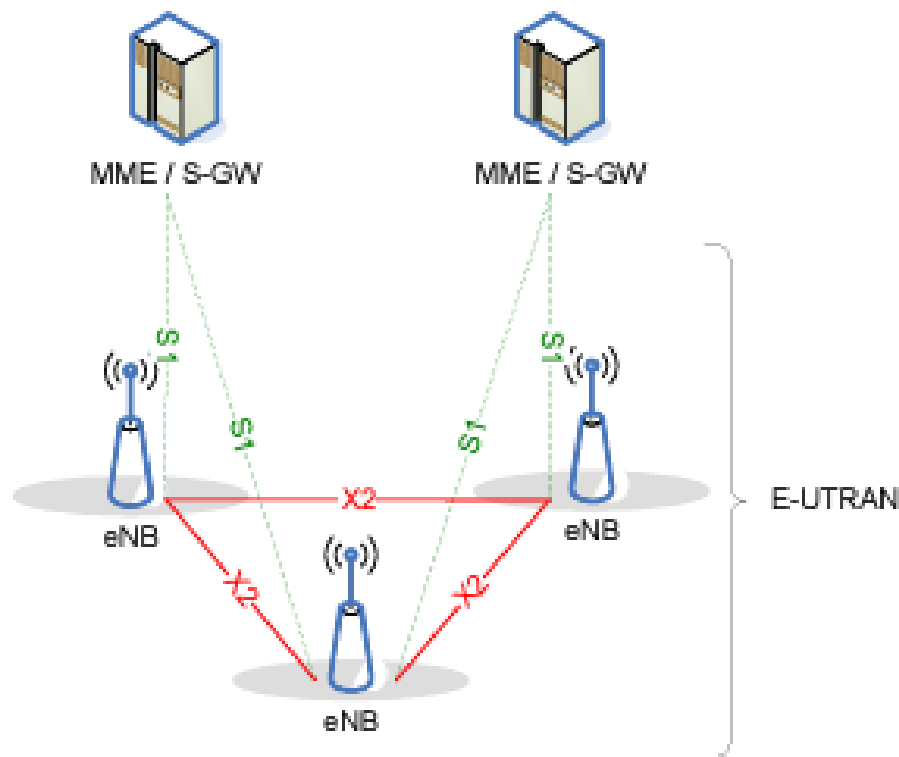
Once the process is triggered, as shown in Figure 11, “the serving base station determines which base stations are to be involved and proceeds with the negotiation process to select[] a preferred beam allocation pattern for all of the involved base stations.” *Id.* ¶ 109. “Where a handover is to occur, the new serving based station will first implement the selected beams determined for it and acquire the UE communication, before the original serving base station implements its new beam pattern.” *Id.* If no handover is to occur, the serving base station maintains communication through refocusing the beam. *Id.* ¶ 109, Fig. 11.

## 2. TS 36.300

TS 36.300 is titled 3rd Generation Partnership Project; Technical Specification 36.300 V10.3.0. Ex. 1223, 1. TS 36.300 describes the Evolved Universal Terrestrial Radio Access Network (E-UTRAN) radio interface protocol architecture. *Id.* at 13. The E-UTRAN architecture is shown in Figure 4. *Id.* at 18.

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**Figure 4-1: Overall Architecture**

Figure 4, above, illustrates the E-UTRAN, which consists of E-UTRAN NodeBs (eNBs) that are interconnected to each other and Mobility Management Entity (MME) / Serving Gateways (S-GW). *Id.* at 18–19. eNBs provide protocol terminations towards the User Equipment (UE). *Id.* at 18.

TS 36.300 describes a “**Handover**” (HO) as a “procedure that changes the serving cell of a UE.” *Id.* at 15. TS 36.300 describes that “Inter RAT [Radio Access Technology] HO is network controlled through [the] source access system.” *Id.* at 77. “Inter RAT HO is [a] backwards handover, i.e.,] radio resources are prepared in the target 3GPP access system before the UE is commanded by the source 3GPP access system to change to the target 3GPP access system.” *Id.* According to TS 36.300, a “[s]imilar handover procedure should apply for both Inter RAT Handover and intra-

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LTE [Long Term Evolution] Handover with an EPC [Evolved Packet Core] node change.” *Id.*

3. *Independent Claim 9*

a) *Reasoning to Combine*

Petitioner argues “a POSITA would have been motivated to combine Chitrapu’s ‘smart handover’ system, which expressly is ‘in accordance with . . . 3GPP,’ with the handover messages defined in 3GPP’s TS 36.300 to implement Chitrapu’s ‘negotiation’ and ‘execution’ of device handover.” Pet. 25. Petitioner’s reasoning is as follows: (1) “Chitrapu explicitly suggests [that] a POSITA look to 3GPP standards,” such as TS 36.300; (2) “a POSITA would have looked to TS 36.300 as a source to identify the types of handover [that] were in the art” because “TS 36.300 describes standardized methods of handover;” and (3) “POSITA would have been motivated to implement” Chitrapu’s “‘smart handover’ process” “using the [more detailed description of the steps of handover] of TS 36.300.” Pet. 25–30 (citing, e.g., Ex. 1003 ¶¶ 3, 74; Ex. 1005 ¶¶ 114–117, 119–125, 160–162, 168, 178). Petitioner also argues that the first two reasons support Petitioner’s argument that a person of ordinary skill in the art would have had a reasonable expectation of success. *Id.* at 25 (citing, e.g., Ex. 1003 ¶ 3; Ex. 1005 ¶¶ 114–117, 119, 123–124).

Starting with Petitioner’s first reason, which is “Chitrapu explicitly suggests [that] a POSITA look to 3GPP standards,” such as TS 36.300 (Pet. 25–26 (citing Ex. 1003 ¶ 7; Ex. 1005 ¶ 117)), we find, based on the preliminary record, Petitioner’s reason is supported by Chitrapu and TS 36.300. In particular, Chitrapu describes systems “constructed in accordance with current specifications of the 3<sup>rd</sup> Generation Partnership

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*Program.*” See Ex. 1003 ¶ 7 (emphasis added). TS 36.300 states, “[t]his technical specification has been produced by the 3<sup>rd</sup> Generation Partnership Project.” Ex. 1223, 12 (emphasis added). Also, Chitrapu and TS 36.300 use similar naming conventions. In particular, Chitrapu’s naming convention for a “transmitting base station” is “node b” and Chitrapu’s naming convention and abbreviation for “a typical subscriber unit, mobile, or otherwise” is “User Equipment (UE).” Ex. 1003 ¶ 7. Similarly, TS 36.300 illustrates a wireless transmitter labeled with “eNB,” which stands for “E-UTRAN Node B” and TS 36.300 uses “UE” to refer to “User Equipment.” Ex. 1223, 18–19 (Fig. 4-1).

Turning to the second reason, which is that “a POSITA would have looked to TS 36.300 as a source to identify the types of handover [that] were in the art” because “TS 36.300 describes standardized methods of handover” (Pet. 26–30 (citing, e.g., Ex. 1005 ¶¶ 119, 124)), we find, based on the preliminary record, that Petitioner’s second reason is supported by Mr. Proctor’s testimony. See, e.g., Ex. 1005 ¶ 116 (testifying that “a POSITA would have been motivated to look to the LTE specifications, such as to TS 36.300”), ¶ 119 (testifying that a “POSITA looking for a source to identify the types of handover that were in the art would have looked to TS 36.300”). Petitioner’s argument that TS 36.300 describes standardized methods of handover is supported by TS 36.300. Ex. 1223, 1 (describing TS.36.300 as a “3<sup>rd</sup> General Partnership Project” “Technical Specification”), 12 (describing that “[t]his Technical Specification has been produced by the 3rd Generation Partnership Project (3GPP)”). Furthermore, Petitioner’s second reason is supported by Mr. Proctor’s testimony that a person of ordinary skill in the art “implementing the concepts from Chitrapu would have understood that a

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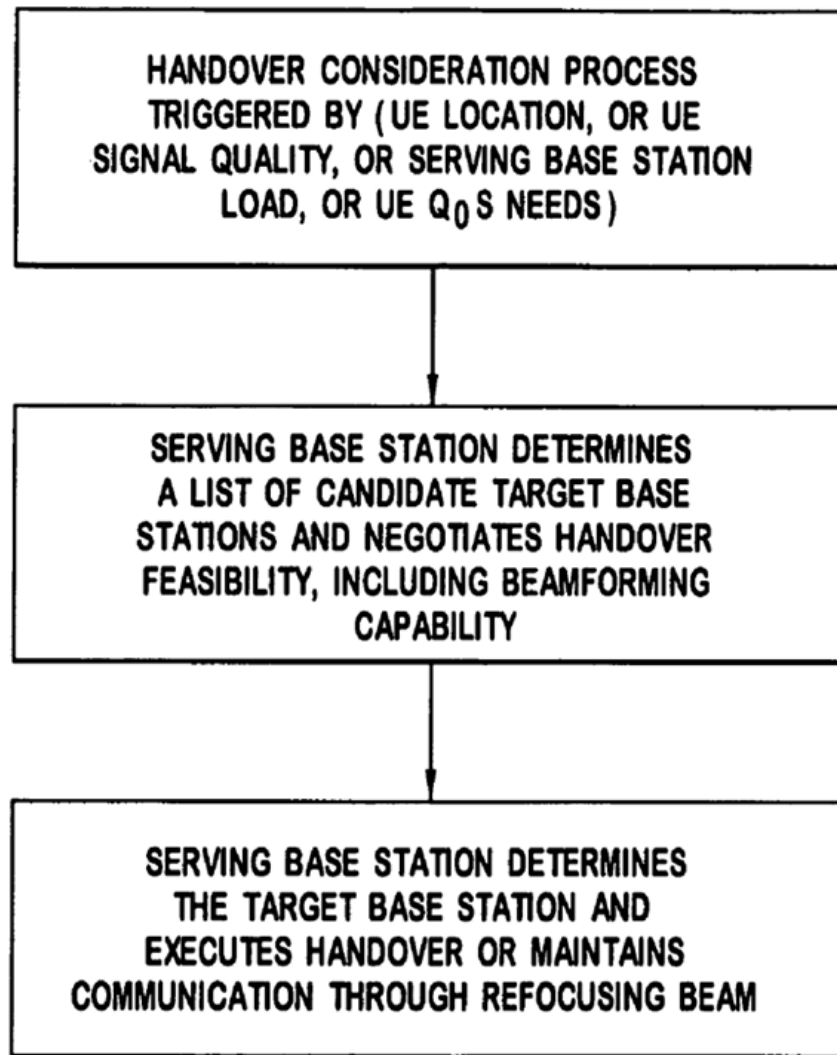
negotiation and execution of handover involves standardized messages between base stations.” Ex. 1005 ¶ 115 (citing Ex. 1003 ¶ 82). Mr. Proctor’s testimony is supported by Chitrapu, which describes a process for geolocation-based beam forming that “consists of an exchange of appropriately designed messages between UE and the Network.” Ex. 1003 ¶¶ 65, 82.

Turning to the third reason, which is that a “POSITA would have been motivated to implement” Chitrapu’s “‘smart handover’ process” “using the [more detailed description of the steps of handover] of TS 36.300” (Pet. 26–30 (citing, e.g., Ex. 1003 ¶ 74; Ex. 1005 ¶¶ 120–123, 125, 160–162, 168, 178)), we find, based on the preliminary record, that Petitioner’s reason is supported by Chitrapu and TS 36.300, respectively. Petitioner, more specifically, argues “while Chitrapu describes the ‘negotiation’ and ‘execution’ of these steps [that is, steps of a handover] at a high level, the specific implementation details of these messages are not disclosed,” but TS 36.300 describes “the specific messages associated with that implementation.” Pet. 26–27.

Chitrapu’s disclosures support Petitioner’s argument. Figure 11 of Chitrapu illustrates an embodiment for a process for conducting a “smart” handover. Ex. 1003 ¶ 108.

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**FIG. 11**

Figure 11, above, illustrates a flow chart of a process for conducting a “smart” handover with beam forming base stations, which may result in no handover being made. *Id.* ¶¶ 70, 108.

As shown in Figure 11 and described in Chitrapu, once the handover process is triggered, “the serving base station determines which base stations are to be involved and proceeds with the *negotiation* process to select[] a preferred beam allocation pattern for all of the involved base stations.” *Id.*

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¶ 109 (emphasis added). As further shown in Figure 11, in the next step the “SERVING BASE STATION DETERMINES THE TARGET BASE STATION AND *EXECUTES* HANDOVER OR MAINTAINS COMMUNICATION THROUGH REFOCUSING [THE] BEAM.” *Id.* at Fig. 11 (emphasis added). Chitrapu describes that geolocation-based beam forming “consists of an exchange of appropriately designed messages between UE and the Network.” Ex. 1003 ¶¶ 65, 82.

Messages for a basic handover scenario are illustrated in Figure 10.1.2.1.1-1 of TS 36.300. Ex. 1223, 62–63.

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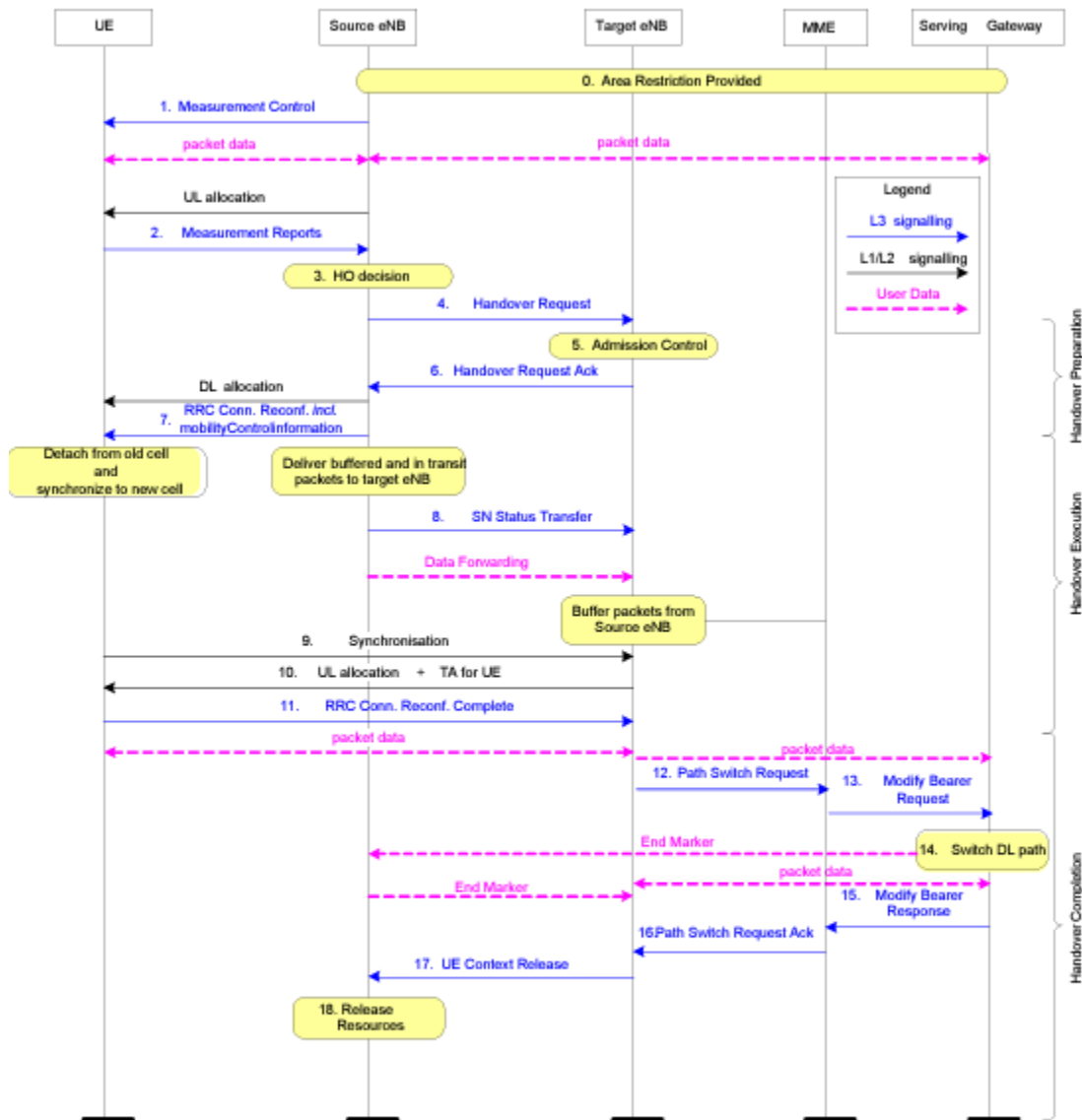


Figure 10.1.2.1.1-1: Intra-MME/Serving Gateway HO

Figure 10.1.2.1.1-1 of TS 36.300, above, illustrates a basic handover scenario including, among other things, messages transmitted between the UE and the Source eNB, as well as messages transmitted between the Source eNB and the Target eNB. *Id.* The messages are transmitted for “Handover Preparation,” “Handover Execution,” and “Handover Completion.” *Id.*

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TS 36.300 provides “a more detailed description” of the handoff procedure and messages shown in Figure 10.1.2.1.1-1. For instance, with respect to “3. HO decision” shown in Figure 10.1.2.1.1-1, TS 36.300 states, “Source eNB makes decision based on MEASUREMENT REPORT and RRM information to hand off UE.” *Id.* at 63–64. Regarding “4. Handover Request” shown in Figure 10.1.2.1.1-1, TS 36.300 states that the “source eNB issues a HANDOVER REQUEST message to the target eNB passing necessary information to prepare the HO at the target side.” *Id.* We, therefore, find, based on the preliminary record before us, that Petitioner’s argument “while Chitrapu describes the ‘negotiation’ and ‘execution’ of these steps [steps of a handover] at a high level, the specific implementation details of these messages are not disclosed,” but TS 36.300 describes “the specific messages associated with that implementation” (Pet. 26–27), is supported by the disclosures of Chitrapu and TS 36.300 above.

Based on the record before us at this stage in the proceeding, we are persuaded that Petitioner has articulated reasoning with a rational underpinning as to why one of ordinary skill in the art would have combined the teachings of Chitrapu and TS 36.300 in the manner recited in claim 9. We also are persuaded, based on this preliminary record, by Petitioner’s arguments that a person having ordinary skill in the art would have had a reasonable expectation of success. Indeed, we find based on this preliminary record that Petitioner provides a compelling, evidence-supported rationale for combining the teachings of Chitrapu and TS 36.300.

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b) *Preamble: “[a] method implemented at a first wireless network for a mobile wireless device handoff between a second wireless network and the first wireless network, the method comprising”*

Relying on the testimony of Mr. Proctor, Petitioner argues that the preamble is taught by the combination of Chitrapu and TS 36.300 because “Chitrapu discloses a method for ‘smart handover’ using dynamic cell coverage, and TS 36.300 discloses Inter-RAT handover between two wireless networks (e.g., a 3G network and 4G LTE network).” Pet. 30 (citing Ex. 1003 ¶ 11; Ex. 1223, 77). Petitioner relies on “Figure 8 and the corresponding description in Chitrapu” for describing “smart handover using dynamic cell coverage.” *Id.* (citing, e.g., Ex. 1003, Fig. 8). Petitioner relies on TS 36.300’s description of Inter RAT handover. *Id.* (citing Ex. 1223, 77).

Regarding reasoning to combine, Petitioner argues “[w]hile Chitrapu does not explicitly disclose that BS1 and BS2 are in different networks,” it would have been obvious to a person of ordinary skill in the art “to modify Chitrapu to include Inter-RAT handover for a number of reasons.” *Id.* at 31 (citing Ex. 1005 ¶¶ 129–131). Petitioner argues (1) “3GPP standards disclosed a standardized Inter-RAT handover between 3G and 4G networks, and Chitrapu explicitly discloses that its systems are described in conjunction with the 3GPP standards;” (2) “there are only two types of handover,” which are “Inter-RAT or Intra-RAT;” and (3) “TS 36.300 explicitly discloses that the handover flows are generally the same regardless of whether the handover is an Inter-RAT handover or not.” *Id.* at 32 (citing Ex. 1003 ¶ 7; Ex. 1223, 76–77; Ex. 1005 ¶¶ 65, 100–101, 116, 130–136).

Based on the current record, we find that Petitioner’s arguments are supported by the cited portions of the prior art. For instance, Chitrapu’s Figure 8 “illustrates a UE conducting a communication with a base station

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BS<sub>1</sub> in one cell and moving toward an adjacent cell which is serviced by a different base station BS<sub>2</sub>.” Ex. 1003 ¶ 105; *see also id.* ¶ 67 (describing that Figure 8 illustrates “a handover scenario as a UE moves from one cell to another”). Mr. Proctor testifies that in an “inter-RAT handover,” “a UE is handed off from a base station operating according to one type of RAT (*e.g.*, 4G LTE) to a base station operating according to a different type of RAT (*e.g.*, 3G UMTS).” Ex. 1005 ¶ 65. Mr. Proctor testifies that the “3rd Generation Partnership Project (‘3GPP’)” is a “standards setting organization” that creates “specifications that define 3GPP technologies” and supports “interoperability with each generation of technology” including “UMTS (3G) and LTE (4G).” *Id.* ¶¶ 55–57 (citing Ex. 1010, 3, 39). Based on the current record, we find that Mr. Proctor’s testimony is supported by the evidence cited therein. Also, TS 36.300 describes “Inter RAT HO” and that a “[s]imilar handover procedure should apply for both Inter RAT Handover and intra-LTE Handover with EPC node change.” Ex. 1223, 77.

After reviewing Petitioner’s arguments and evidence, which are not addressed by Patent Owner at this stage of the proceeding, we find that the combination of Chitrapu and TS 36.300 teaches the preamble.<sup>7</sup> We further find, based on the record before us at this stage, that the Petition presents a compelling, meritorious showing that the preamble is taught by the cited portions of the prior art and a person of ordinary skill in the art would have had reason to make Petitioner’s proposed combination. *See* § IV.D.3.b

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<sup>7</sup> We need not resolve the issue of whether the preamble is limiting at this stage because, regardless of whether the preamble is limiting, we find, based on the record before us at this stage, that the prior art teaches the recitation in the preamble.

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(discussion above of the preamble), § IV.D.3.a (discussion of reasoning to combine).

*c) Limitation 9.a: “receiving a handoff request from the second wireless network, the handoff request based, at least in part, on a determination by the second wireless network that the wireless device is not currently covered by the first wireless network but is capable of being covered by the first wireless network”*

Relying on the testimony of Mr. Proctor, Petitioner argues that limitation 9.a is taught by the combination of Chitrapu and TS 36.300.

Pet. 33–44. Petitioner argues that limitation 9.a

consists of two parts: ([1]) receiving a handoff request from the second wireless network, and ([2]) the handoff request based, at least in part, on a determination by the second wireless network that the wireless device is not currently covered by the first wireless network but is capable of being covered by the first wireless network.

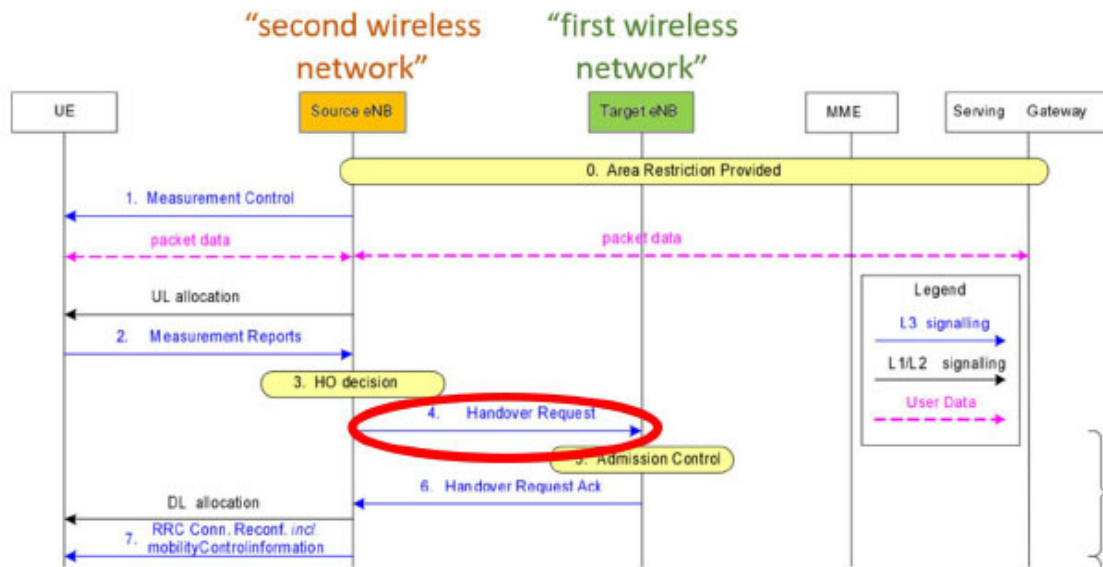
*Id.* at 33–34 (citing Ex. 1005 ¶ 136).

For limitation 9.a(1), which is “receiving a handoff request from the second wireless network,” Petitioner argues a person of ordinary skill in the art “would have considered it obvious to use the handover request message to implement Chitrapu’s teaching of executing the handover following the determination of ‘beamforming capability’ and identification of the target base station.” *Id.* at 35 (citing Ex. 1005 ¶¶ 120–123; Ex. 1003, Fig. 11). Petitioner argues “TS 36.300 discloses the relevant handover messages, including specifically the ‘handover request’ message.” *Id.*

Petitioner provides an annotated version of part of Figure 10.1.2.1.1-1 of TS 36.300. Pet. 36.

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The annotated top part of Figure 10.1.2.1.1-1 of TS 36.300, above, includes Petitioner's annotations as follows: (1) orange highlighting of Source eNB with the orange textual annotation of "second wireless network," (2) green highlighting of Target eNB with green textual annotation of "first wireless network," and (3) an annotation of a red circle around a depiction in the original figure of an arrow from the Source eNB to the Target eNB with text "4 Handover Request." *Id.*

For limitation 9.a(2), which is "the handoff request based, at least in part, on a determination by the second wireless network that the wireless device is not currently covered by the first wireless network but is capable of being covered by the first wireless network," Petitioner argues "Chitrapu in combination with TS 36.300 renders obvious" this limitation. *Id.* at 37 (citing Ex. 1005 ¶ 144). Petitioner argues that both Chitrapu and TS 36.300 disclose that the determination "that the wireless device is not currently covered by the first wireless network but is capable of being covered by the first wireless network" is made by the *source* base station. *See, e.g., id.* at 37,

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43–44 (citing Ex. 1003 ¶ 109, Fig. 11; Ex. 1223, 77; Ex. 1005 ¶¶ 145–146, 158–160). Petitioner argues that Chitrapu teaches that the source base station makes the determination “by acquiring UE location information and beamforming capabilities” of the candidate base stations. *Id.* at 42 (citing Ex. 1003 ¶ 109; Ex. 1005 ¶ 156). Petitioner argues that TS 36.300 teaches making handover determinations “in 3GPP systems like Chitrapu” and that such handover determinations include “that the wireless device is not currently covered by the first wireless network but is capable of being covered by the first wireless network.” *Id.* at 43–44 (citing Ex. 1223, 77; Ex. 1005 ¶ 161).

Patent Owner disputes Petitioner’s arguments. Prelim. Resp. 8–19. First, Patent Owner acknowledges that the Petition states that “Chitrapu in combination with TS 36.300 renders obvious” limitation 9.a(2), but Patent Owner argues that “the Petition does not rely on TS 36.300 for this sub-limitation, except as an alternative to Chitrapu, and only for the notion that ‘the source base station is responsible for the handover determination,’” which Patent Owner argues “is not relevant” to Patent Owner’s dispute. *Id.* at 8 n.1.

We find that Patent Owner’s first argument is unavailing, based on the preliminary record at this juncture. Patent Owner’s quote of the Petition’s discussion of TS 36.300 omits part of Petitioner’s argument, which is reproduced in italics here: “Thus, TS 36.300 informs a POSITA that the source base station is responsible for handover determinations, *including that the wireless device is currently not covered by the first wireless network but is capable of being covered by the first network.*” Pet. 44 (citing Ex. 1223, 77; Ex. 1005 ¶ 161). In addition to relying on discussion in a

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subsection of TS 36.300 entitled “10.2.2 Handover” (Ex. 1223, 77 (cited in Pet. 43–44)) in connection with limitation 9.a(2), Petitioner relies on TS 36.300’s description of “relevant handover messages, including specifically the ‘handover request’ message of the claim limitation” in connection with limitation 9.a(1). Pet. 35 (citing, e.g., Ex. 1223, 63, 76–77, Fig. 10.1.2.1.1-1). We consider Petitioner’s arguments for limitation 9.a(1) in connection with limitation 9.a(2) because limitation 9.a(2) recites “the handoff request,” which derives antecedent basis from “a handoff request” recited in limitation 9.a(1). Based on the record before us at this preliminary stage, therefore, we find that Petitioner does rely on TS 36.300 for limitation 9.a(2), contrary to Patent Owner’s argument.

Second, Patent Owner argues “[n]othing in paragraph 109 or Figure 11 of Chitrapu discloses or suggests that the source base station determines whether or not the UE is ‘current covered’ by the target base station before initiating a handoff.” Prelim. Resp. 9–10. We find, based on the preliminary record at this juncture, that Patent Owner’s argument is contrary to Chitrapu’s disclosures. In particular, Chitrapu describes, “[w]here a handover is to occur, the *new* serving base station will first implement the selected beams determined for it and *acquire* the UE communication, before the *original* serving base station implements its new beam pattern.” Ex. 1003 ¶ 109 (emphasis added). Chitrapu describes expressly that a handover involves a “new” serving base station that differs from the “original” serving base station and that the “new serving base station . . . acquire[s] the UE communication.” *Id.* Chitrapu describes that, as illustrated in Figure 11, the “general process for conducting ‘smart’ handover” may “result in *no handover being made*.” *Id.* ¶ 108 (emphasis added). Figure 11 similarly

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states that either “THE TARGET BASE STATION,” which differs from the “SERVING BASE STATION” is determined and a “HANDOVER” is executed or the serving base station “MAINTAINS COMMUNICATION THROUGH REFOCUSING BEAM.” *Id.* at Fig. 11.

The handover determination itself is a determination that a “UE” communication, will be *acquired* by a “new serving base station.” *See, e.g.*, Ex. 1003 ¶ 109. Based on the preliminary record before us at this juncture, we find that the requirement of “a determination . . . that the wireless device is not currently covered by the first wireless network but is capable of being covered by the first wireless network” recited in limitation 9.a(2) is taught by Chitrapu’s handover determination. *See, e.g.*, Ex. 1003 ¶ 109, Fig. 11; *see also id.* ¶ 106 (describing a “handover consideration process” involving “candidate cells,” which also are referred to as “candidate target cells”), ¶ 107 (describing “if a *neighboring* cell is not able to efficiently accept the UE, it may be determined that the *original* cell is best situation and should continue to serve the UE” (emphasis added)), ¶ 108 (describing a “general process for conducting ‘smart’ handover, *which may actually result in no handover being made*” (emphasis added))).

Based on the preliminary record at this stage, we find that TS 36.300 provides further support for Petitioner’s position. For instance, TS 36.300 refers to a “Source eNB” and a “Target eNB.” *See, e.g.*, Ex. 1223, 63, Fig. 10.1.2.1.1-1; *see also id.* at 77 (describing “Handover” with respect to a “source access system” and a “target system”). TS 36.300 describes that, as part of the handover process, “the UE is commanded by the source 3GPP access system *to change to* the target 3GPP access system.” *Id.* at 77. In other words, the UE is not covered by the target 3GPP access system prior to

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execution of the handover. Indeed, TS 36.300 defines “**Handover**” as a “procedure that *changes* the serving cell of a UE.” *Id.* at 15 (emphasis added).

Third, Patent Owner argues that Petitioner’s annotations to Figure 2 of Chitrapu do not teach making a determination. Prelim. Resp. 11–14, 16–19. The Petition includes explanation relating to negotiating with candidate target base stations to determine the feasibility of dynamically changing a coverage area. Pet. 37–40. Limitation 9.a(2) recites that the determination is both “that the wireless device is not currently covered by the first wireless network” and that the wireless device “is capable of being covered by the first wireless network.” That the Petition includes explanation relating to negotiating regarding the feasibility of dynamically changing a coverage area does not negate the Petition’s argument and evidence showing that Chitrapu and TS 36.300 teach the determination “that the wireless device is not currently covered by the first wireless network.”

Fourth, Patent Owner argues that Chitrapu’s negotiation process identifies “*all* base stations that could possibly connect to the UE based on the base station’s possible transmission range, *regardless of whether the UE is within the current coverage area of a base station or not.*” Prelim. Resp. 15. Patent Owner relies on Chitrapu’s description that “[e]ach base station that has a transmission range which encompasses the estimated UE location is identified,” as well as related description. *Id.* (citing Ex. 1003 ¶¶ 30, 36–39, 43, 49–52). But Chitrapu describes that its “general process for conducting ‘smart’ handover,” may “result in *no handover being made.*” Ex. 1003 ¶ 108 (emphasis added). Figure 11 of Chitrapu describes executing handover to the target base station or the serving base station *maintaining*

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communication. *Id.* at Fig. 11. Thus, even assuming the Patent Owner is correct regarding the negotiation process, that process occurs prior to the handover determination and may result in a determination that no handover should be made.

Based on the preliminary record at this juncture, we find that Chitrapu's handover determination teaches the disputed limitation. According to Chitrapu, "[w]here a handover is to occur, the new serving base station" implements its new beam pattern and "acquire[s] the UE communication" from the "original serving base station." *Id.* ¶ 109. In TS 36.300, the handover determination is referred to as a "HO decision." Ex. 1223, 63. In particular, as shown in TS 36.300, the "Handover Request," which is "4," is sent after the "HO decision," which is "3." *Id.* at 63, Fig. 10.1.2.1.1-1. In TS 36.300, a handover is a "procedure that *changes* the serving cell of a UE." Ex. 1223, 15 (emphasis added). In other words, where handover occurs, the wireless device is not currently covered by the target network.

Finally, Patent Owner argues, "it is worth noting that the prosecution history of the '888 [p]atent illustrates the importance of claim limitation [9.a], as the Applicant distinguished prior art on the basis of it." Prelim. Resp. 19. Patent Owner argues the claim "was then allowed by the Examiner." *Id.* (citing Ex. 1002, 194, 204, 212, 227, 246–247, 259, 262, 265–266, 268–271, 442).

During prosecution, application claim 10, which corresponds to issued claim 9, was rejected by the Examiner as anticipated by "Siomina," U.S.

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Published Application No. 2012/0149430. Ex. 1002, 124.<sup>8</sup> The Examiner cited paragraph 47 of Siomina. Ex. 1002, 124. Paragraph 47 of Siomina is reproduced below.

Step 302. Each radio base station 12,13,15 broadcasts and transmits reference signals carrying system information (SI) or similar providing radio coverage over geographical areas. The user equipment 10 is served in the first cell 11 but moves towards the second cell 14, and continuously measures signal strengths of received reference signals. This step corresponds to the step 201 in FIG. 2. Signal strengths difference may be reported to the network, e.g. the first radio base station 12 or second radio base station 13, and when decision in the network is made e.g. the first and second radio base stations 12,13 decide based on signal strengths difference and available resources, a handover command may be sent to the user equipment 10.

Ex. 3001 ¶ 47. Based on the record at this preliminary stage, we find that Siomina lacks details described in Chitrapu and TS 36.300.

At this preliminary stage, Patent Owner does not argue that a definition or disclaimer is set forth in the intrinsic record. Instead, Patent Owner argues the prosecution history “illustrates the importance” of the disputed claim limitation. Based on the preliminary record before us, using the plain and ordinary meaning under the *Phillips* standard, we find that the disputed limitation is taught by the asserted prior art.

For the reasons given, we find that Patent Owner’s arguments do not undermine Petitioner’s showing at this stage of the proceeding. After reviewing the parties’ arguments and evidence at this stage, we find that the combination of Chitrapu and TS 36.300 teaches limitation 9.a. We further find, based on the record before us at this stage, that the Petition presents a

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<sup>8</sup> Herein, we refer to the reference as Siomina and the reference is entered as Exhibit 3001.

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compelling, meritorious showing, which is not undermined by Patent Owner's arguments, at this stage, that limitation 9.a is taught by the cited portions of the prior art and a person of ordinary skill in the art would have had reason to make Petitioner's proposed combination. *See* § IV.D.3.c (discussion above of limitation 9.a), § IV.D.3.a (discussion of reasoning to combine).

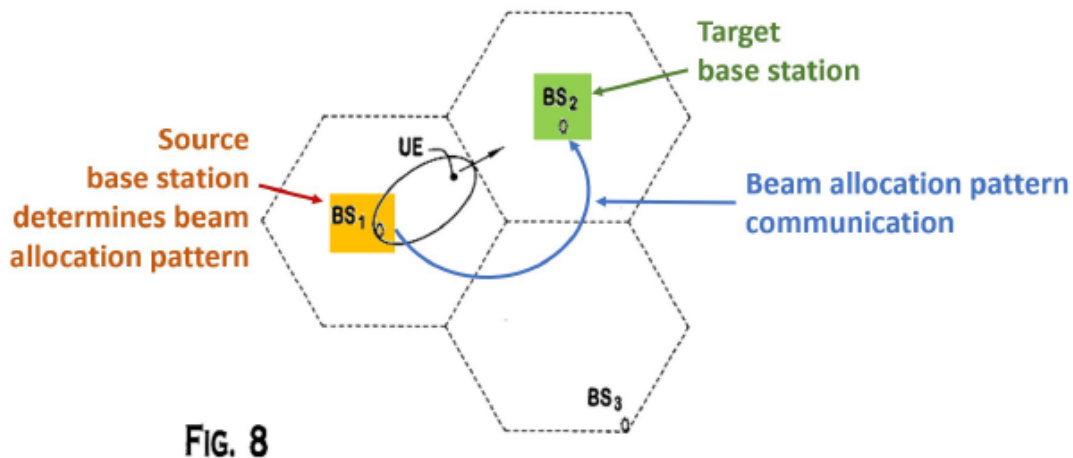
*d) Limitation 9.b: "based, at least in part, on the handoff request, adapting one or more beams of an antenna array to facilitate coverage of the wireless device by the first wireless network; and"*

Relying on the testimony of Mr. Proctor, Petitioner argues that limitation 9.b is taught by the combination of Chitrapu and TS 36.300 because Chitrapu describes that "the serving base station is responsible for the handover process" and "TS 36.300 shows the information about the handover process is sent in the handoff request" by disclosing that "the 'source eNB issues a HANDOVER REQUEST message to the target eNB *passing necessary information to prepare the HO at the target side.*'" Pet. 45, 47–48 (citing Ex. 1003 ¶¶ 105–110, Figs. 2, 8; Ex. 1005 ¶¶ 164–166, 169, 171, 173; Ex. 1223, 63–64).

Relying on the testimony of Mr. Proctor, Petitioner provides an annotated version of Figure 8 of Chitrapu.

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Annotated Figure 8 of Chitrapu, above, illustrates a UE in one cell with base station BS<sub>1</sub> highlighted by Petitioner in orange, and another cell, which is serviced by base station BS<sub>2</sub>, highlighted in green. Pet. 46. Annotated Figure 8 includes Petitioner's further annotations as follows: (1) an orange textual annotation of "Source base station determines beam allocation pattern" corresponding to the orange highlighted BS<sub>1</sub>, (2) a green textual annotation of "Target base station" corresponding to the green highlighted BS<sub>2</sub>, and (3) a blue textual annotation "Beam allocation pattern communication" corresponding to a blue arrow from BS<sub>1</sub> to BS<sub>2</sub>. Pet. 46.

Limitation 9.b recites "the handoff request," which derives antecedent basis from "a handoff request" recited in limitation 9.a. Petitioner relies on the same message, which is "4. Handover Request" for both limitations 9.a and 9.b. Pet. 36, 47–48. Relying on the testimony of Mr. Proctor, Petitioner also argues a "POSITA would have understood that necessary information to prepare for HO at the target side would have included the beam allocation pattern the source base station selected, since these beam allocation patterns are taught in Chitrapu as necessary for the handover." *Id.* at 48 (citing Ex. 1005 ¶ 173; Ex. 1003 ¶¶ 108–110).

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Based on the preliminary record before us, we find Petitioner's arguments are supported by the cited portions of the prior art. For instance, Chitrapu describes that Figure 8 illustrates "a handover scenario as a UE moves from one cell to another" (Ex. 1003 ¶ 67) and that in Figure 8, a UE conducts "a communication with a base station BS<sub>1</sub> in one cell" while "moving toward an adjacent cell which is serviced by a different base station BS<sub>2</sub>." *Id.* ¶ 105. TS 36.300 describes "4" as follows: "[t]he source eNB issues a HANDOVER REQUEST message to the target eNB passing necessary information to prepare the HO at the target side." Ex. 1223, 64. TS 36.300 also describes that "Inter RAT HO is [a] backwards handover, i.e., *radio resources are prepared in the target 3GPP access system before the UE is commanded by the source 3GPP access system to change to the target 3GPP access system.*" *Id.* at 77 (emphasis added).

After reviewing Petitioner's arguments and evidence, which are not addressed by Patent Owner at this stage of the proceeding, we find that the combination of Chitrapu and TS 36.300 teaches limitation 9.b. We further find, based on the record before us at this stage, that the Petition presents a compelling, meritorious showing that limitation 9.b is taught by the cited portions of the prior art and a person of ordinary skill in the art would have had reason to make Petitioner's proposed combination. *See* § IV.D.3.d (discussion above of limitation 9.b), § IV.D.3.a (discussion of reasoning to combine).

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*e) Limitation 9.c: “transmitting a confirmation from the first wireless network to the second wireless network to indicate acceptance of the handoff request, wherein the wireless device is handed off from the second wireless network to the first wireless network.”*

Relying on the testimony of Mr. Proctor, Petitioner argues that limitation 9.c is taught by the combination of Chitrapu and TS 36.300 because TS 36.300 discloses message “17,” which is a “UE Context Release” that is sent from the target network (first network) to the source network (second network) in the “Handover Completion” phase. Pet. 50 (citing Ex. 1005 ¶ 179; Ex. 1223, 63, Fig. 10.1.2.1.1-1). Petitioner relies on TS 36.300’s statement that “[b]y sending the UE CONTEXT RELEASE message, the target eNB *informs success of HO* (handover) to source eNB.” *Id.* at 51 (quoting Ex. 1223, 64 (emphasis in Petition)). Based on the preliminary record before us, we find Petitioner’s arguments supported by the cited portions of the prior art.

After reviewing Petitioner’s arguments and evidence, which are not addressed by Patent Owner at this stage of the proceeding, we find that the combination of Chitrapu and TS 36.300 teaches limitation 9.c. We further find, based on the record before us at this stage, that the Petition presents a compelling, meritorious showing that limitation 9.c is taught by the cited portions of the prior art and a person of ordinary skill in the art would have had reason to make Petitioner’s proposed combination. *See* § IV.D.3.e (discussion above of limitation 9.c), § IV.D.3.a (discussion of reasoning to combine).

*f) Conclusion—Claim 9*

For the foregoing reasons, based on the current record, we determine that Petitioner has demonstrated a reasonable likelihood that it would prevail

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in showing that claim 9 is unpatentable under 35 U.S.C. § 103 as obvious over the combination of Chitrapu and TS 36.300. Furthermore, upon consideration, for the reasons given above, we determine that the totality of the evidence rises to the level of “compelling merits” for claim 9 according to the Office’s current guidance and Board precedents. *CommScope*, Paper 23, 4–5; Interim *Fintiv* Guidance 4; *OpenSky*, Paper 102, 49–50.

4. *Dependent Claims 10 and 12*

Petitioner asserts that claims 10 and 12 are unpatentable as obvious over Chitrapu and TS 36.300. Pet. 6, 52–56. Claims 10 and 12 depend directly from claim 9. Petitioner provides a detailed analysis in support of its position that the combination of Chitrapu and TS 36.300 teaches the limitations in these dependent claims. *See id.* At this early stage, Patent Owner does not challenge Petitioner’s analysis for these dependent claims. Having reviewed Petitioner’s arguments and evidence for these claims, we are persuaded that Petitioner’s showing for claims 10 and 12 is sufficient for purposes of institution.

Accordingly, we determine that Petitioner has demonstrated a reasonable likelihood that it would prevail in showing that claims 10 and 12 are unpatentable as obvious over Chitrapu and TS 36.300.

5. *Claims 20, 21, and 23*

Independent claim 20 recites

20. [20.p] A system for a wireless device handoff between a first wireless network and a second wireless network, the system comprising:

[20.a] an antenna array configured to generate one or more adaptable beams to modify a coverage area for the first wireless network; and

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[20.b] an adaption manager having logic, the logic configured to:

[20.c] receive a handoff request from the second wireless network, the handoff request based, at least in part, on a determination by the second wireless network that the wireless device is capable of being covered by the first wireless network,

[20.d] cause a beam from among the one or more adaptable beams to be adapted in order to enable the wireless device to be covered by the first wireless network, and

[20.e] transmit a confirmation to the second wireless network to indicate acceptance of the handoff request, wherein the wireless device is handed off from the second wireless network to the first wireless network.

Ex. 1001, 19:59–20:10.

For limitation 20.b, Petitioner argues

Chitrapu renders obvious this claim limitation. Chitrapu discloses an adaption manager configured to perform the functions listed in elements 20.b. In particular, Chitrapu discloses a “beam former,” a “geolocation processor” *See, e.g.*, Ex. 1003, ¶[0041]. Chitrapu discloses how the “beam former controls the RF module to transmit or receive communication data for a selected UE in a shaped beam that encompasses an estimated location of the selected UE where geolocation data which corresponds to the estimated location of the selected UE is processed by the geolocation processor.” Ex. 1003, ¶[0022]. A POSITA would have understood these components to be an adaption manager having logic. Ex. 1005, ¶203.

Pet. 57. Thus, Petitioner argues that Chitrapu’s “beam former” and “geolocation processor” teach the “adaption manager” recited in limitation 20.b. *Id.* (citing Ex. 1003 ¶ 41).

Patent Owner argues that claim 20 “is a system claim that requires, in part: ‘[20.b] an *adaption manager* having logic, the logic configured to:

[20.c] *receive a handoff request* from the second wireless network . . . , and

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[20.e] ***transmit a confirmation*** to the second wireless network to indicate acceptance of the handoff request.” Prelim. Resp. 20 (Ex. 1001, 19:65–20:3, 20:7–10). Patent Owner argues that Petitioner has not shown that Chitrapu’s “beam former” and “geolocation processor” perform steps 20.c and 20.e. Prelim. Resp. 20–23. Based on the preliminary record before us at this juncture, we question whether Petitioner provides sufficient argument and evidence showing that the asserted prior art teaches “an adaption manager having logic” that is configured to perform steps 20.c and 20.e.

Claims 21 and 23 depend directly from claim 20. Petitioner does not supplement its showing for the “adaption manager” recited in claim 20 in its contentions for claims 21 and 23. Pet. 59–60.

Because Petitioner demonstrates a reasonable likelihood of success in proving that at least one claim of the ’888 patent is unpatentable, we institute on all grounds and all claims raised in the Petition. *See* 37 C.F.R.

§ 42.108(a). At this stage of the proceeding, therefore, we need not provide a conclusion for every claim and every challenge raised by Petitioner. The dispute as to whether Petitioner has shown that claims 20, 21, and 23 would have been obvious over Chitrapu and TS 36.300, in our view, is best left for trial after full development of the record.

## V. CONCLUSION

For the foregoing reasons, we determine that Petitioner has demonstrated that there is a reasonable likelihood that it would prevail in proving the unpatentability of at least one of the challenged claims of the ’888 patent. We thus institute an *inter partes* review of all of the challenged claims of the ’888 patent on all grounds asserted in the Petition. *See* 37 C.F.R. § 42.108(a).

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Any findings or conclusions in this Decision are made only for the purposes of institution and are not dispositive of any issue. We have not made a final determination with respect to the patentability of any challenged claim. Our final determination will be based on the record as fully developed during trial, including any evidence or argument timely presented by the parties under our Rules.

## VI. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that *inter partes* review of claims 9, 10, 12, 20, 21, and 23 of the '888 patent is hereby instituted on all grounds stated in the Petition; and

FURTHER ORDERED that pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, notice is hereby given of the institution of a trial; the trial will commence on the entry date of this Decision.

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